The low, ill-defined cumulus in Mr. Hook's "Low-Tide Gleanings" are not more finished than the rest of the picture, but are correct both in form and drawing; and the same remarks apply to his work, "A Day for the Lighthouse."

"Thanet Cliffs in the Time of Peace," by Mr. S. Cooper, shows a good cumulus with cirrus overhead; but in Mr. C. Hunter's "Fishers of the North Sea" the cumulus cloud is not satisfactory.

Mists on a mountain, with a gray sky, are very well painted in Mr. Faed's "And with the Burden of Many Years," and make an effective background to a striking work of art; while in "The Approach to Bealloch-na-ba" Mr. H. Davis has delineated mountain mist with equally good effect.

Mr. P. Graham's "A Norfolk River" contains a very good showery sky, but the brush-marks give an appearance of fibrous structure which would not be in Nature; while his "Driven by the Wind" contains an effective mass of gray nimbus or rain-cloud.

Mr. W. Shaw paints a good misty yellow-tinted sky in his "Tide Race"; but the great mass of cumulus behind Sir F. Leighton's central figure of the "Captive Andromache" is not very satisfactory.

The sky in "The Old Water-Way," by T. Liddell, is good so far as form is concerned, but is painted so heavily that the clouds look like clods. Philologists say that the word cloud is really derived from clod, but artists should not express that idea in their works. There is a rainbow in this picture, so ill defined that it is difficult to make out the succession of tints; though I think the red is meant to be outside, which is correct.

Mr. R. Rouse's "Pasture-land in Kent" would be much more pleasing if the clouds were more carefully painted, and not so like patches on the sky. In No. 553, Mr. H. Wells is to be complimented on having painted rays diverging from the sun from exactly the proper kind of sky. These rays are rarely seen except through a peculiar, flat, broken cloud; but they are usually associated with a firmer, harder sky than is here depicted.

Lastly, Mr. C. Johnson paints the "Plain of Arundel" under two well-drawn layers of cloud; and Mr. J. MacWhirter has hit off with great skill and accuracy a flat, broken cloud, lit from below by a setting sun, beside the picturesque castle of "Edinburgh."

Such are some of the more notable skies in our great national exhibition of pictures, and it will be seen at once that the best skies are painted as a rule by those who have achieved the greatest success in the other elements which make up a good picture. May we not therefore fairly conclude that part of their success is due to their faithful rendering of skies and clouds; and that it behoves those who wish to attain a high place among landscape painters to study the form, the structure, and the perspective of those clouds which give life, and height, and distance, to every picture? RALPH ABERCROMBY.

THE OXFORD UNIVERSITY OBSERVATORY.

THE following are the principal parts of the Thirteenth Annual Report of the Savilian Professor of Astronomy to the Board of Visitors of the University Observatory, read June 6, 1888:—

I. *Lectures.*—In addition to the requisite statutable lectures, Prof. Pritchard has offered some others of a more elementary and quasi public character on descriptive astronomy, and expressed as far as possible in untechnical language. He has been so much encouraged by the interest manifested in these lectures that he proposes to offer another and perhaps more extended series on the recent speculations as to the origin of the Cosmos from meteoric collision and on matters cognate therewith.

II. *Instruments.*—The De La Rue equatorial is in excellent order; its mechanical mounting is now equal to the delicate purposes of stellar parallax to which it has been uninterruptedly applied during the last twelve months. Although the mirror is perhaps somewhat dimmed with age, its figure, which has been recently tested by comparison with the presumed best productions of the day, retains its original very remarkable character.

The two mirrors mentioned in the last Report have been mounted temporarily on the large equatorial for the purpose of the comparison of their photographic action. An efficient electric control contrived by Sir H. Grubb has also been added with the view of securing the great accuracy necessary in the movement of the telescope. The work for which the mirrors were intended having been completed, they have now been dismounted.

Dr. De La Rue having provided the funds necessary for a photographic telescope of 13 inches aperture and of the pattern suggested at the Paris Conference of 1887, the large equatorial has been sent to Sir H. Grubb at Dublin, for the purpose of attaching thereto the instrument in question, and of carrying out the other considerable alterations necessary for the photographic charting of the heavens, as proposed at the aforesaid Conference.

The transit-circle is in perfect order.

III. *Buildings.* — Mr. Nasmyth has presented his magnificent picture map of the moon for the service of the Observatory. This very beautiful work of art (6 feet in diameter) was completed by Mr. Nasmyth from actual observation with a large telescope of his own construction in 1849.

IV. *Astronomical Work.*—During the past year this has been twofold. In the first place continuous attention has been devoted to the photography of small portions of the heavens with the view of determining the parallax of certain selected stars. In the first instance a careful trial of the method was made on the parallax of 61^1 and 61^2 Cygni, because the parallax of the point midway between the two stars had been determined, with presumedly great accuracy, by Bessel in 1838, whereby effective means of comparing the two methods were supplied. The general agreement of the result obtained from photography with that determined by this most able astronomer, together with the remarkable consistency of the individual photographic measurements, satisfied Prof. Pritchard not only of the great convenience, but also of the unimpeachable accuracy of the method. Dr. Pritchard has consequently much extended these operations for stellar parallax, and before the termination of the present year he hopes that the computation of the parallaxes of altogether some ten or twelve stars will be completed. The list will comprise 61^1 and 61^2 Cygni, μ Cassiopeiæ, and Polaris, which four stars may be regarded as already completed. Three more parallaxes have been *provisionally* determined from observations of *six months*,* viz. α, β, γ Cassiopeiæ; four others also are in a forward state. Experience has suggested that these stellar parallaxes will be most readily and efficiently determined by confining the photographic work on each star to those four periods of the year which, in respect of each parallactic ellipse, are the most effective for the purpose. It should be stated that for the purposes of accuracy four stars of comparison are selected, instead of the two with which astronomers have hitherto been generally contented. This photographic process enables Prof. Pritchard also, without much consumption of time, to measure from night to night the distance between the stars of comparison themselves, thus furnishing a check to the unavoidable variability of the scale of the focal field and of the photographic film. These operations are at present restricted to a systematic catalogue of stars of the second magnitude. It appears that astronomical work like this is well adapted to an Observatory connected with a great

© 1888 Nature Publishing Group

University. It may be interesting to record the results of the computations so far obtained, viz.:—

61^1 Cygni .	0″·4289	±0″·0180	α Cassiopeiæ .	0″·072	±0″·042*
61^2 Cygni .	0·4353	±0·0152	β Cassiopeiæ .	0·187	±0·039*
μ Cassiopeiæ	0·0356	±0·0250	γ Cassiopeiæ	<0·05	±0·047*
Polaris . .	0·052	±0·0314			

The last result is peculiarly interesting, as it seems to furnish an instance where the resources of modern astronomy have arrived at the limits of their present possibility. The total number of plates taken for the purposes of the above investigation is approximately 700, and each plate has been measured with 120 bisections of the necessary stars, amounting altogether to about eighty-four thousand observations. Independently and concurrently with the preceding work Dr. Pritchard undertook for the Photographic Committee of the Royal Society the examination of two silver on glass mirrors of the same aperture but of very different focal lengths, with the view of ascertaining the practical effects of focal length on the photographic field. This work, owing to the temporary character of the mounting and the imperfection of the mechanical movement of the telescope, has been attended with great labour and personal endurance on the part of the observer, but at length it was brought to a successful conclusion, and the results have been communicated to and printed by the Royal Society. The expenses of the instrumental appliances connected with this investigation have been defrayed partly from a grant from the Royal Society, and partly by the generosity of Dr. De La Rue, to whom this Observatory owes so much, not only in the matter of pecuniary aid, but by his kindly encouragement and appreciation of our labours. The general result of the investigation alluded to above is the comparative unsuitability of any mirror for an extensive charting of the heavens, and particularly as regards mirrors of short focal length; but at the same time it leaves no doubt as to their capacity for the singularly accurate delineation of small portions of the heavens, and for such operations as those connected with stellar parallax, or the charting of the moon. Preparations were made for the necessary observations of the lunar eclipse of January 28 of this year; but, as was the unfortunate case with this and many other Observatories, they were rendered ineffectual by a clouded sky.

The above astronomical operations made under Dr. Pritchard's direction were skilfully and sedulously carried out by the two Observatory assistants, Mr. Plummer and Mr. Jenkins.

NOTES.

WE learn that Dr. Guppy left England for Batavia on the 30th ult. with the intention of spending some time in the examination of the living and upraised coral reefs of the Indian Archipelago. Mr. John Murray has provided the necessary funds for the first six months of his sojourn in that region, and has directed Dr. Guppy in the first place to make as complete an examination as he can of the geological structure of Christmas Island. Judging from the important notes and collections made by Captain Aldrich and Mr. Lister during the recent visit of H.M.S. *Egeria*, this island would seem to be one of the oldest of the upraised coral islands, and as such it is likely to prove of considerable geological interest. At the last meeting of the Geographical Society, Captain Wharton, the Hydrographer, read a short paper on this subject.

APPARENTLY we have missed our chance of solving the many interesting problems relating to the Antarctic regions. The matter has now been taken in hand by Germany, and we may be sure that she will not fail to carry out the enterprise in an energetic and thoroughly scientific spirit. The expedition is being organized by Dr. Neumayer, of the Hamburg Observatory.

MR. JESSE COLLINGS is to be congratulated on the result of his efforts to secure for the parish of West Lavington, Wiltshire, the full benefit of the Dauntsey Charity, a part of which the Charity Commissioners proposed to use for the establishment of a High School in some other place in Wiltshire. It is now proposed—with the approval of the Mercers' Company, the principal trustees and patrons of the Charity, who have agreed to undertake a liability of £60,000—not only that the children of the poorer inhabitants of West Lavington shall be provided with an ordinary elementary education, but that a fully-equipped Lower School for technical training in horticulture and agriculture shall be created for their benefit. It is intended that the latter school shall be adapted to the needs of persons who cannot afford to attend such institutions as those at Cirencester and Downton. If the scheme is carried out, land will be provided for the more thorough instruction of pupils, and classes will be formed for the teaching of the various sciences and arts which especially relate to agriculture.

ON July 16, Prof. W. E. Ayrton will begin, at the City and Guilds of London Institute, a course of six lectures (to be delivered on Mondays, Wednesdays, and Fridays) on the construction, testing, and use of electrical measuring instruments. This course will include experimental lectures and special laboratory work. The lectures will comprise the principles and practice of the construction, calibration, and testing for faults of ammeters, voltmeters, ohmmeters, wattmeters, coulombmeters, and ergmeters as used for direct and alternating current systems. The students' practical work will be conducted in a laboratory specially fitted with accumulators, standard instruments, &c., for electrical instrument testing; and they will have the opportunity of examining and practically trying all the more important electrical meters at present in ordinary use.

AN interesting Exhibition of hygiene and life-saving apparatus has been opened in the Park Léopold at Ostend. The exhibits are divided into the following sections:—Applications of geological, meteorological, and medical science to hygiene, industrial hygiene, maritime hygiene, domestic hygiene, hygiene of infancy, publications relating to hygiene, and life-saving apparatus.

AT Messrs. Stevens' Sale Rooms on Monday, the 25th ult., a specimen of *Papilio caunus* from Assam was sold for £10. Mr. William Watkin, of Croydon, was the purchaser.

AT the meeting of the Scientific Committee of the Royal Horticultural Society on June 26, Prof. Church contributed a summary of his highly interesting and important researches upon the presence of aluminium in the ashes of plants. This substance, instead of being peculiar to the species of Lycopodium, as once supposed, is found in minute traces in the ashes of very many others, a circumstance not to be wondered at, considering the abundant distribution of the element in many soils. It occurs in all the species of Lycopodium examined, except those which are of epiphytic habit, and which, consequently, do not directly derive their food from the soil. It does not occur in the allied genus Selaginella. It occurs in the ashes of some tree ferns in large proportions, sometimes forming as much as 20 per cent. of the ash, as in *Alsophila australis*, *Cyathea medullaris*; while from others it is all but absent. In the British species of ferns little or no alumina has been found.

AT the same meeting Mr. McLachlan called attention to the notion that cold winters are injurious to insects—a notion he stated to be erroneous, although, no doubt, severe alternations of cold, heat, drought, or moisture, were prejudicial to insect life. During the present season it was noticed generally that great destruction of foliage occurred from caterpillars which destroyed the succulent portions of the leaf and tied the framework and fragments together by a web of fine threads comparable with

© 1888 Nature Publishing Group